

In the Claims:

1. (Currently Amended) A method of coordinating access to a data network service comprising:
 - maintaining a registry of a plurality of service providers;
 - receiving a query for a requested data network service from a source, said query including required attributes of said requested data network service;
 - searching said registry to determine whether a given one of said plurality of service providers in said registry can provide said requested data network service having said required attributes; and
 - if said given one of said plurality of service providers in said registry can provide said requested data network service having said required attributes, sending information identifying said given one of said plurality of service providers to said source of said query;
if none of said plurality of service providers in said registry can provide said requested data network service having said required attributes, selecting a remote directory service utility; and
sending a propagated query to said remote directory service utility.
2. (Canceled)
3. (Currently Amended) The method of claim [[2]] 1 wherein said selecting the remote directory service utility comprises consulting a summary of services available at said remote directory service utility to determine that said requested data network service is likely to be available from a service provider registered with said remote directory service utility.
4. (Currently Amended) The method of claim [[2]] 1 wherein said selecting the remote directory service utility is based on a hierarchical relationship and said remote directory service utility is hierarchically higher than a directory service utility performing said selecting.
5. (Original) The method of claim 1 wherein said query is described using Extensible Markup Language (XML).

6. (Original) The method of claim 1 wherein said source of said query is a network connected device requiring said data network service.
7. (Original) The method of claim 1 wherein said source of said query is a directory service utility.
8. (Original) The method of claim 1 further comprising:
receiving, from a particular service provider, a service description indicating attributes of a provided service; and
adding said particular service provider to said registry.
9. (Currently Amended) A directory service utility comprising:
a registry of a plurality of service providers;
a processor for searching said registry to determine whether a given one of said plurality of service providers in said registry can provide a requested data network service having required attributes; and
a network interface for:
receiving a query for said requested data network service having said required attributes from a source; and
sending information identifying said given one of said plurality of service providers to said source of said query; and
if none of said plurality of service providers in said registry can provide said requested data network service having said required attributes, selecting a remote directory service utility; and
sending a propagated query to said remote directory service utility.
10. (Currently Amended) A directory service utility comprising:
means for maintaining a registry of a plurality of service providers;
means for receiving a query for a requested data network service from a source, said query including required attributes of said requested data network service;

means for searching said registry to determine whether a given one of said plurality of service providers in said registry can provide [(a)] said requested data network service having required attributes; and

means for sending information identifying said given one of said plurality of service providers to said source of said query;

means for selecting a remote directory service utility if none of said plurality of service providers in said registry can provide said requested data network service having said required attributes; and

means for sending a propagated query to said remote directory service utility.

11. (Currently Amended) A computer readable medium containing computer-executable instructions which, when performed by a processor in a directory service utility, cause the processor to:

maintain a registry of a plurality of service providers;

receive a query for a requested data network service from a source, said query including required attributes of said requested data network service;

search said registry to determine whether a given one of said plurality of service providers in said registry can provide said requested data network service having said required attributes; and

if [(a)] said given one of said plurality of service providers in said registry can provide [(a)] said requested data network service having said required attributes, send information identifying said given one of said plurality of service providers to said source of said query

if none of said plurality of service providers in said registry can provide said requested data network service having said required attributes, select a remote directory service utility; and
send a propagated query to said remote directory service utility.

12. (Currently Amended) At a first directory service utility situated in a local service cluster, a method of coordinating access to a data network service comprising:

maintaining a registry of a plurality of service providers;

receiving a propagated query for a requested data network service from a second directory service utility situated in a remote service cluster, where said propagated query

includes a source of an initial query and required attributes of said requested data network service;

searching said registry to determine whether a given one of said plurality of service providers in said registry can provide said requested data network service having said required attributes; and

if said given one of said plurality of service providers in said registry can provide said requested data network service having said required attributes,

extracting said source of said initial query from said propagated query; and

sending information identifying said given one of said plurality of service provider providers to said source of said initial query;

if none of said plurality of service providers in said registry can provide said requested data network service having said required attributes, selecting a remote directory service utility; and

sending a propagated query to said remote directory service utility.

13-17. (Canceled)

18. (Original) A method of building network relationships at a first directory service utility in communication with at least one other directory service utility, said method comprising:

selecting one said directory service utility from said at least one other directory service utility as a selected directory service utility;

assigning said selected directory service utility a parent directory service utility designation; and

indicating said parent directory service utility designation to said selected directory service utility.

19. (Currently Amended) A method of service information propagation at a first directory service utility comprising:

creating a summary of information about at least one service provider registered with said first directory service utility; and

sending said summary of information to a second directory service utility;

wherein said second directory service utility has been designated as a parent directory service utility of said first directory service utility.

20. (Canceled)

21. (Currently Amended) The method of claim 19 wherein said creating said summary of information involves bloom filtering.

22. (Original) A method of coordinating access to a data network service comprising:
maintaining a registry of a plurality of service providers;
receiving a query for a requested data network service from a source, said query including required attributes of said requested data network service;
searching said registry to determine whether a given one of said plurality of service providers in said registry can provide said requested data network service having said required attributes; and
if none of said plurality of service providers in said registry can provide said requested data network service having said required attributes,
consulting a summary of services available at service providers registered with at least one remote directory service utility;
determining that said requested data network service is available from a service provider registered with a particular remote directory service utility; and
sending a propagated query to said particular remote directory service utility, where said propagated query is based on said query for said requested data network service.